

The LCLS-II-HE SRF gun development

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The SLAC National Accelerator Laboratory is undergoing an upgrade to its newest accelerator the LCLS-II. The upgrade consists of installation of 23 new high gradient cavity cryomodules and a Low Emittance Injector (LEI) design both of which will extend the photon energy reach of the LCLS-II accelerator. The SRF gun has a target gradient of 30 MV/m, will produce a target bunch charge of 100 pC, and will operate under CW conditions with a bunch repetition rate of 928.6 kHz. The nominal cavity design frequency is 185.7 MHz, which is the same as the existing NC LCLS-II gun cavity. Thus, it makes sense to adapt the existing LCLS-II LLRF gun control hardware with the LCLS-II SRF firmware and software suite. A description of this effort, and the extra challenges of this merged LLRF system will be presented.

Keyword

SRF gun

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